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EXAMINER

STERRETT, JONATHAN G

ART UNIT PAPER NUMBER

3623

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/825,589	Applicant(s) ANDRE ET AL.	
	Examiner Jonathan G. Sterrett	Art Unit 3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 14-26, 29-39, 42-44 is/are rejected.
- 7) ☒ Claim(s) 12, 13, 27, 28, 40 and 41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Summary

1. This **Office Action** is responsive to applicant's amendment filed October 11, 2005. Currently **Claims 1-44** are pending.

Response to Arguments

2. The applicant's arguments have been fully considered, but they are not persuasive.
3. The applicant argues that Leggett does not teach "generating a schedule for a plurality of employees with varying skill sets for a time period, wherein the plurality of employees have varying overlapping skill sets that enable them to perform various tasks, and wherein the employees are shared across tasks within the time period." The examiner respectfully disagrees.

In response to applicant's arguments, the recitation cited above has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

4. The applicant argues that the limitation “receiving a plurality of user inputs to a scheduling program, including a number of employee designations that each refer to a unique employee, and a number of skill sets that each correspond to one of the employee designations”, is not met by Leggett.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Leggett teaches receiving inputs into a scheduling program that are employee designations. Bucci teaches receiving inputs into a scheduling program that include employee designations and skillsets. The combination of Leggett and Bucci address the claimed limitation with a reasonable expectation of success.

5. The applicant argues that Leggett does not teach the effect of adding an additional employee will have on the staffing level for each of the calls (i.e. tasks). The examiner respectfully disagrees. Providing a number of FTE's to achieve a staffing level and providing a number of FTE's to provide a service level cannot be differentiated from each other because Leggett's teachings regarding the number of FTE's is determined by the number of FTE's to handle a number of calls in a period of time, i.e. the staffing level.

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6. The applicant argues that Leggett does not teach determining whether to simulate the based in part on an adaptive algorithm. The examiner respectfully disagrees. This limitation is not granted patentable weight since it is not positively recited. The limitation states determining whether to simulate the schedule, it does not positively recite that the schedule is actually simulated. As further evidence of it not being positively recited, the claim does not make clear if the schedule is simulated, how the simulation is used to correct, adjust or replace the schedule.

7. The applicant argues that one of ordinary skill in the art would find no motivation to combine the references. The examiner respectfully disagrees. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Bucci provides the motivation of taking into account a worker's skill in scheduling because it improves their satisfaction level. The combination of Bucci and Leggett would be obvious because of the reasonable expectation of success in improving an employee's satisfaction level by taking their skill level and schedule preference into account.

8. The applicant argues that the White reference does not teach dividing a schedule into intervals such that each of the intervals is processed by a different processor and that the combination of White into the Leggett and Bucci patents is improper hindsight (Claims 12, 13, 27, 28, 40 and 41).

The examiner considers this argument to be persuasive and the rejection of these claims is withdrawn.

9. The applicant argues that Leggett, Bucci and Leamon do not teach the limitations of Claim 6. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). The rejection of claim 6 is made on a combination of Leggett and Leamon. Leggett teaches a predetermined factor of average handling time (i.e. average number of tasks per time interval). Leamon teaches the use of simulation in analyzing a call center schedule. Since both Leamon and Leggett are addressing scheduling issues and Leamon discloses the success of integrating simulation into scheduling, the combination of Leggett and Leamon to meet the limitation of claim 6 is proper with a reasonable expectation of success.

10. The applicant argues that the Blue Pumpkin references do not teach the limitations of Claims 42 and 44. The examiner respectfully disagrees.

The limitation cited of “determining whether to simulate a proposed schedule” is not positively recited and thus given no patentable weight. The cited reference meets the claim limitation since the manager has to determine whether to schedule or to do a forecast.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12. **Claims 1, 14, 29, and 42** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding Claims 1, 14, 29 and 42, the limitation of ‘determining whether to simulate’ is cited. This is indefinite because it is not clear what the limitation is claiming. If the determination is made to simulate the schedule, then is the schedule actually simulated? If the schedule is simulated, then how is the simulation connected to actually scheduling employees? The claim limitation should state that the schedule is actually simulated or not and how the outcome of this step is connected to actually scheduling employees or not. As it is stated, the claim limitation of ‘determining whether to simulate’ makes the claim indefinite.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. **Claims 1-5, 7-11, 14-20, 22-26, 29-33, 29-33 and 35-39** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leggett US 5,185,780** in view of **Bucci US 6,823,315**.

Regarding **Claim 1**, Leggett teaches:

receiving a plurality of user inputs to a scheduling program including a number of employee designations that each refer to a unique employee,

column 7 line 27-32, individual agents for each management unit are assigned to the generated tours (shift schedule) for the management unit. This assignment would require multiple unique employee designations being input into the system-see also the table in column 15 line 27-35, the codes in this table correspond specifically to individual agents as to their status.

during the method for generating the schedule, determining an effect on the schedule of an incremental change to the plurality of user inputs, including,

receiving a user input that changes the number of employee designations by indicating at least one changed employee;

column 13 line 3-7, Leggett's algorithm changes the number of employee designations incrementally, to converge on the number of agents required for a particular service level. The algorithm is executed upon command by a user, thus the user input has the effect of changing the number of employee designations.

estimating the effect of the at least one changed employee on effective staffing levels for each of the various tasks; and

column 13 line 3-5, Leggett's method estimates the effect that adding an incremental worker (i.e. changed worker) will have on the staffing levels for each of the calls (i.e. tasks). The algorithm increments and decrements the number of agents to determine the number of agents to achieve a particular staffing level.

determining whether to simulate the schedule based at least in part on an adaptive algorithm;

Examiner notes that the limitation here is not positively recited and is not granted patentable weight past 'determining whether'.

Column 4 line 41-45, automatic reforecasting ability automatically determines whether to determine the schedule based on new data that is received.

generating estimated effective staffing levels for each of the various tasks.

Column 13 line 1-3, the effective staffing levels generated by Leggett's algorithm determine how long each call will have to wait (i.e. staffing level).

Leggett does not teach:

wherein the estimating uses as an input a skill set associated with the at least one changed employee;

and a number of skillsets that each correspond to one of the employee designations; and

Bucci teaches:

wherein the estimating uses as an input a skill set associated with the at least one changed employee;

Column 4 line 44-46, skill sets for each employee and the associated task they can do is used in scheduling. – see also column 3 line 13-20, the estimating for each employee (i.e. changed employee) uses the skill set associated with that employee.

and a number of skillsets that each correspond to one of the employee designations; and

column 4 line 44-46, the skills associated with each employee are used in the scheduling program to ensure work requirements are met.

Column 8 line 36-37, skill constraints in the algorithm comprise the set of jobs that an employee can work.

Bucci and Leggett address the problem of performing employee scheduling that is responsive to a varying demand for workers, thus both Bucci and Leggett are analogous art.

Bucci teaches that taking worker skill and preference into account results in higher worker satisfaction (column 3 line 38-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Leggett, regarding providing a scheduling application for use in call centers where the scheduling application is responsive to a varying call demand, to include the step of where each worker is characterized by a number of skillsets, as taught by Bucci, because it would improve worker satisfaction.

Regarding **Claim 2**, Leggett and Bucci teach all the limitations of Claim 1, above, and Leggett also teaches:

wherein the user input that changes the number of employee designations has an effect chosen from a group including adding at least one employee designation and subtracting at least one employee designation.

Column 12 line 45-48, an iteration is performed in the Erlang algorithm where $n+1$ agents (i.e. adding at least one employee designation) is used to calculate the service level (i.e. staffing level).

Regarding **Claim 3**, Leggett and Bucci teach all the limitations of Claim 1, above, and Leggett also teaches:

determining a number of changes that can be made to the schedule during the scheduling method without simulating a proposed schedule, wherein

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determining includes comparing a predetermined amount of allowed error and a cumulative error that results from estimating.

Column 12 line 50-54, determining the number of changes to the schedule is done by calculating the impact of adding an additional agent to the schedule and then comparing the impact on service level (i.e. allowed error, that is service level is the percent of calls going unanswered for a period of time) to see if the service level desired is lower than a target service level (i.e. cumulative error). Leggett's invention is based on the Erlang calculation rather than a deterministic or stochastic simulation (i.e. monte carlo simulation).

Regarding **Claim 4**, Leggett teaches all the limitations of Claim 3, above, and also teaches:

calculating a total effective work a changed employee will perform; scaling each task by at least one predetermined factor; and adjusting a work distribution for every unique employee other than the changed employee based upon the total effective work the changed employee will perform.

Column 17 line 19-25, a supervisor can calculate the impact of adding or removing one agent to the shift. If an employee is added or subtracted, the supervisor can calculate the impact to service level (i.e. adjust a work distribution) – if one agent is missing then the work queue for all the remaining agents gets adjusted—see also column 17 line 36-39.

Regarding **Claim 5**, Leggett teaches all the limitations of Claim 4, above, and also teaches:

distributing the changed employee's effective work across the plurality of tasks.

Column 17 line 40-43, the supervisor can modify the schedules of other agents based on the absence of particular agents, i.e. distribute the changed employee's effective work across the plurality of tasks. The supervisor is distributing the calls an absent agent would normally handle to other agents in the call center.

Regarding **Claim 7**, Leggett teaches all the limitations of Claim 4, above, and teaches:

calculating a total effective work a changed employee will perform

column 12 line 40-44, method calculates the amount of calls individual agents will answer in a period of time (i.e. total effective work).

Leggett does not teach where this calculation is based on:

a number of skills of the changed employee;

proficiencies of the changed employee;

and priorities of the changed employee.

Bucci teaches:

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wherein calculating a total effective work a changed employee will perform comprises applying a function to:

Column 6 line 40-43, objective function associated with meeting labor requirements calculates the work a changed employee will perform.

a number of skills of the changed employee;

Column 4 line 44, employee skills (i.e. a number of skills) must be taken into account when developing schedules.

proficiencies of the changed employee;

Column 4 line 47, employee seniority (i.e. proficiency) is taken into account when calculating the work an employee will do when a new schedule is generated.

and priorities of the changed employee.

Column 4 line 53, employee preferences (i.e. priorities) must be taken into account when changing the schedule, that is, adding or subtracting employees from the schedule (i.e. changed employee).

Bucci and Leggett address the problem of performing scheduling that is responsive to a varying demand for workers, thus both Bucci and Leggett are analogous art.

Bucci teaches that taking worker skill and preference into account results in higher worker satisfaction (column 3 line 38-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Leggett, regarding providing a scheduling application for use in call centers, to include the calculation of the amount of work of a changed employee by using a function applied to skills, proficiencies and priorities of the changed employee, as taught by Bucci, because it would improve worker satisfaction.

Regarding **Claim 8**, Leggett teaches all the limitations of Claim 4, above, and teaches:

wherein adjusting the work distribution for every unique employee other than the changed employee includes adjusting an effective contribution to each task worked by one of the other unique employees by a factor reflecting that a different amount of work will be required for tasks worked by the changed employee.

Column 17 line 23-26, the team supervisor can determine the effects on service level – i.e. the amount of calls answered in a period of time, by determining the number of open agents on the rest of the shift. An employee who is working (i.e. changed) impacts the amount of work of the rest of the shift employees by lowering it. In other words the total amount of calls that a shift has to answer is spread between more and more employees as more employees are added. So the unique employees have a different amount of work (i.e. fewer calls to answer) when a changed employee assumes some part of the task load.

Regarding **Claim 9**, Leggett and Bucci teaches all the limitations of Claim 4 above, and Leggett teaches:

wherein the schedule is for staffing a call center, and wherein the plurality of employees comprises a plurality of agents.

Figures 5 & 8 show schedule details for scheduling agents in a call center.

Column 5 line 42-45, force management system for scheduling workforce.

Column 5 line 50-53, system used for call center application.

Regarding **Claim 10**, Leggett and Bucci teaches all the limitations of Claim 6, above, and Leggett teaches:

wherein the schedule is for staffing a call center,

Column 5 line 42-45, force management system for scheduling workforce.

Column 5 line 50-53, system used for call center application.

wherein the plurality of employees comprises a plurality of agents,

Column 6 line 4-6, employees staffing workstations to answer calls. These employees comprises a plurality of agents – see also Figure 2 for an illustration of the different management groups used to staff a call center.

a task comprises a call queue,

Column 6 line 68-60, a call load (i.e. queue of calls for call center) of calls comes into the call center for a particular shift.

and a subtask comprises a call.

Column 6 line 64, call volumes are comprised of individual calls (i.e. subtask).

Regarding **Claim 11**, Leggett teaches all the limitations of Claim 10, above, and Leggett teaches:

agents are considered of equivalent capability in answering calls and work on the same queue during their shift (column 6 line 18-20).

Leggett does not teach:

wherein the varying skill sets include multiple skills for each agent, and wherein each agent may work on multiple call queues in one time period.

Bucci teaches:

wherein the varying skill sets include multiple skills for each agent, and wherein each agent may work on multiple call queues in one time period.

Column 8 line 34-37, each employee (i.e. agent) has a set of skills (i.e. multiple skills) that enable them to work on a particular set of jobs (i.e. multiple call queues) in a week (i.e. one time period).

Bucci and Leggett address the problem of performing scheduling that is responsive to a varying demand for workers, thus both Bucci and Leggett are analogous art.

Bucci teaches that taking worker skill and preference into account results in higher worker satisfaction (column 3 line 38-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Leggett, regarding providing a scheduling application for use in call centers, to include where workers can work on multiple queues using multiple skillsets in a given time period, as taught by Bucci, because it would improve worker satisfaction.

Claims 17-20, 22-26, 29-33 and 35-39 recite limitations already addressed by the rejection of **Claims 1-5 and 7-11** above, therefore they are rejected under the same rationale.

Regarding **Claim 14**, all the limitations have been addressed by Leggett and Bucci in Claim 1 above, and Leggett teaches:

at least one server comprising at least one storage device;

column 6 line 3-6, central computer linked to workstations is a server, since it contains the operating program accessed by the workstations.

at least one client processor coupled to the server through a network,

column 6 line 3-4, workstations (i.e. client processor) is coupled to the server through a network—see figure 1 #26a.

wherein the client processor is coupled to a plurality of storage devices, including a storage device that stores instructions that, when executed, cause the at least one client processor receive a plurality of user inputs into a scheduling program.

Figure 1 #16 and #18 are the MIS database and FMS database which store instructions that cause the workstations (#24), to receive inputs into a scheduling program. Figure 5 & 8 illustrate two screens in the program for inputting user inputs in the scheduling program.

Regarding **Claim 15**, Leggett teaches:

wherein the storage device that stores the instructions is accessed by at least one storage device of the server.

Column 6 line 33-37, supervisory workstation accesses the instructions stored by the server for running the scheduling program –see also Figure 10#124 and the workstations in Figure 1 (e.g.#24) which access the instructions stored in at least one storage device, to produce the input screens of Figure 5 & 8.

Regarding **Claim 16**, Leggett teaches:

wherein the storage device that stores the instructions is the at least one storage device of the server.

Figure 4 #50, administration of the central computer (i.e. server) stores the instructions for running the scheduling program – see also column 6 line 34-35, the 3B2/1000 contains storage area for storing instructions.

Allowable Subject Matter

15. **Claims 12, 13, 27, 28, 40 and 41** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. **Claims 6, 21 and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Leggett US 5,185,780** in view of **Bucci US 6,823,315** and further in view of **Leamon**.

Leamon, Paul, "Workforce Management with Skills-Based Call Routing: The New Challenge", March 1999, Call Center Solutions, pp.88-93.

Regarding **Claim 6**, Leggett teaches all the limitations of Claim 4, above, and also teaches:

wherein the at least one predetermined factor includes a measure of average time to handle a subtask divided by a number of subtasks per time interval,

column 7 line 52-55, AHT(average handling time) is the average time to handle a call (i.e. subtask). Call volume is the number of calls (i.e. subtasks) per a time interval. A single agent could handle 3 calls an hour if the AHT is 20 minutes. 600 calls in an hour would require 200 agents, so the predetermined factor as taught by Leggett would be 200 additional agents. This meets the claim limitation above because $1 / (3 \text{ calls per hour per agent}) \text{ divided by } 600 \text{ calls / hour} = 200 \text{ agents}$.

Leggett does not teach that one of the factors used to scale how much work a changed employee will perform is based on:

a measure of how much work remains in a task based upon results of a previous simulation.

Leamon teaches:

a measure of how much work remains in a task based upon results of a previous simulation.

Page 93 paragraph 2 line 8-11, the inclusion of simulation input into a scheduling program allows the analysis of changes to the schedule (i.e. scaling the total effective work a changed employee will perform by a predetermined factor)—this would include determining how much work remains in a task based upon results of a previous simulation. The simulation would indicate the impact of adding or subtracting unique employees to the schedule, including determining a measure of how much work

remains in a task. This impact would be used to refine the schedule, since Leamon teaches the integration of a simulator into the scheduling program.

Leamon, Leggett and Bucci all deal with scheduling workers in an environment of varying demand, thus all are analogous art.

Leamon teaches that the inclusion of a simulator into a scheduling program automatically creates accurate forecasts and effective working schedules.

It would have been obvious to one of ordinary skill in the art to modify the collective teachings of Leggett and Bucci, regarding scheduling employees with multiple skills in a work environment, with the step of using simulation as input into a scheduling program to determine the impact of adding or subtracting employees, as taught by Leamon, because it would automatically create accurate forecasts and produce effective working schedules.

Claims 21 and 34 recite limitations already addressed by the rejection of **Claim 6** above, therefore they are rejected under the same rationale.

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17. **Claims 42-44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Blue Pumpkin's PrimeTime Call Center software product (**Blue Pumpkin**) as disclosed in the following documents:

TMC Labs, "PrimeTime Enterprise Receives Editors' Choice", July 1999, Call Center Solutions, pp.1-6, http://archive.bibalex.org/web/20000229044631/blue-pumpkin.com/reviews/ccs0799_edcs_choice.html, hereafter referred to as **Reference U1**.

Monegain, Bernie, "Avis Takes Charge of Airport Staffing", March 2000, Call Center News, pp.1-2, <http://archive.bibalex.org/web/20000520211508/blue-pumpkin.com/reviews/ccnews0300.html>, hereafter referred to as **Reference V1**.

Regarding **Claim 42**, Blue Pumpkin teaches:

initiating an automatic scheduling process that receives employee data including skill sets as an input;

Reference U1 page 3 paragraph 4 line 1-4, employee data received into software as part of scheduling process. – see also line 11-15, skill sets are included in employee data that is received.

Reference V1 page 1 paragraph 2 line 1-4, software used in call center scheduling automates the scheduling process of employees.

determining whether to simulate a proposed schedule,

Reference U1 page 4 paragraph 5 line 1-3, call center manager determines whether to forecast (i.e. simulate) or schedule as part of managing a campaign.

if it is determined not to simulate the proposed schedule, continuing with the method including evaluating and outputting the proposed schedule;

Reference U1 page 5 paragraph 5 line 1-3 & 7-11, Once the data is set up, having made adjustments as a result of a forecast or using the employee data as entered, the software automatically generates a schedule which is output by accessing an employee's calendar tab –see page 3 paragraph 5 line 3-5. The system highlights if there is a problem with the schedule (i.e. evaluates it) prior to providing the schedule to employees and managers over the network (i.e. outputting the proposed schedule).

**determining whether a change has been made to the employee data;
if a change has been made to the employee data, calculating an effective change to staffing levels; and**

Reference U1 page 5 paragraph 1 line 3-6, the scale button in the software allows a manager to determine if employee performance is different than what was entered into the system, including accounting for unanticipated absenteeism (i.e. changes to employee data). This feature then allows the software to calculate an adjustment to the schedule (i.e. staffing levels) to account for the difference in employee data.

wherein the calculating includes estimating an effect of at least one changed employee on the effective change to staffing levels for a number of

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various tasks, wherein the estimating uses as an input a skill set associated with the at least one changed employee;

Reference U1 page 3 paragraph 4 line 11-15, skill sets are included in employee data that is received for use in calculating the effective change to staffing levels for a number of various tasks, where these tasks are associated with the skill level of the particular employee – see also Reference U1 page 5 paragraph 1 line 10-12, the estimating determines the effective change in a staffing level associated with at least one changed employee.

continuing with the method including evaluating and outputting the proposed schedule.

Reference U1 page 4 paragraph 5 line 1-3, The campaign mode allows the manager to forecast and schedule on a weekly basis. This scheduling includes forecasting (i.e. simulating) as per above and determining if there has been changes in employee data as per above. This prework can be done to ensure the scheduling process has the most accurate data prior to generating an actual schedule.

Although Blue Pumpkin teaches forecasting as per above, it does not teach:

including measuring a cumulative error of using an estimation function from results of the simulation, and a predetermined allowed error;

Official Notice is taken it is old and well known in the art of forecasting for the technique of linear regression to be used. Linear regression provides an equation that

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allows estimates to be provided from the equation (i.e. estimation function). The standard error from this equation, known as the R^2 , provides a measure of fit for the particular equation (i.e. cumulative error). The R^2 varies from 0 (no correlation) to 1 (perfect correlation) and provides a measure of the forecasted data set as to the amount of error likely to be incurred as a result of using the equation to forecast. Comparing the R^2 for a particular forecast equation to a predetermined R^2 (i.e. predetermined allowed error) allows the user to determine whether the regression is valid. In some cases an R^2 of 0.3 is considered acceptable, that is the equation fits 30% of the data. In other cases an R^2 of a higher number is used to determine if the regression is significant. In these cases an R^2 of 60-70% may be required for the regression to be considered statistically valid to be used in a forecast. Other measures of regression include the use of the F-statistic, which is compared to a predetermined F-statistic to determine if the regression is statistically viable. The use of regression analysis as a forecasting technique is old and well known in the art and fully meets the claim limitations.

Regression analysis is used because it provides a way to mathematically predict a future outcome using historical data including predicting how accurate the forecast will be.

Both Blue Pumpkin and the use of regression analysis address using forecasts to predict future events, and so both are analogous art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Blue Pumpkin, regarding using software to forecast and manage schedules in call centers, to include the step of including measuring a cumulative error of using an estimation function from results of the simulation, and a predetermined allowed error, as taught by the well known technique of regression analysis, because it would provide a means to accurately forecast future outcomes using historical data.

Regarding **Claim 43**, Blue Pumpkin teaches all the limitations of Claim 42 above, and also teaches:

wherein skill sets comprise abilities to service client call queues, and

Reference U1 page 3 paragraph 4 line 11-15, skill based scheduling comprises abilities to service client call queues.

**wherein calculating the effective change to staffing levels comprises:
determining a total effective work a changed employee will perform,**

Reference U1 page 5 paragraph 1 line 6-12, the shrinkage button allows to determine the impact on the amount of calls (i.e. total effective work) from adding or subtracting a single employee from the total number of employees staffed.

**wherein a changed employer is selected from a group comprising an
added employee and a removed employee; and**

Reference U1 page 5 paragraph 1 line 6-12, the shrinkage button allows the determination of adding or removing an employee. The objective of this button is to determine the impact of adding or subtracting employees to the call center shift.

scaling each of a plurality of call queues to be staffed in accordance with the total effective work of the changed employee.

Reference U1 page 5 paragraph 1 line 3-7, the scale button allows the incoming call percentage to be scaled up or down in accordance with the number of calls (i.e. total effective work) that a changed employee will handle.

Regarding **Claim 44**, Blue Pumpkin teaches all the limitations of Claim 43 above, and also teaches:

distributing the changed employee's effective work across the plurality of call queues;

Reference U1 page 4 paragraph 6 line 10-12, agents can be on more than one campaign (i.e. call queue) based on their skills. This assignment would distribute their effective work across more than one call queue.

and adjusting other employees effective work in accordance with the total effective work of the changed employee.

Reference U1 page 4 paragraph 7 line 1-5, scheduling determines how many agents are schedule in total to ensure that average handling time meets targeted service levels given the call volume. Adding an employee adjusts the other employee's

effective work in accordance with the amount of calls handled by the added employee (i.e. changed employee).

Conclusion

18. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan G. Sterrett whose telephone number is (571) 272-6881. The examiner can normally be reached on Monday-Friday, 8:00AM - 6:00PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on (571) 272-6729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JGS

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12/20/2005


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